

Heavy rainfall and floods in India and Pakistan

Description

Heavy rainfall has devastated parts of India and Pakistan in recent days, leading to some of the worst flooding in decades.

The extreme conditions were caused by a tropical depression associated with the ongoing monsoon season which tracked northwards across the countries, bringing exceptional rainfall totals over short time periods.

In the Punjab province of Pakistan, some areas saw around 300mm (12 inches) of rain falling in less than 24 hours. This is close to the amount of rainfall we would expect through the whole of the winter in the UK.

Although the heaviest of the rain has now eased, water levels in some parts of the countries are continuing to rise.

Hundreds of people are thought to have died as a result of the floods, with officials saying that around 400,000 people are stranded in Indian-administered Kashmir. Around 700,000 people have also been told to leave their homes in Pakistan due to rising water levels.

Date Created

September 2014

Space weather brings Northern Lights to UK

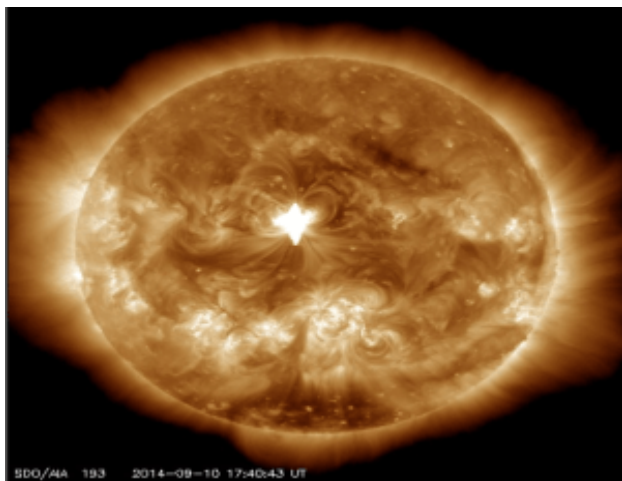
Description

You may be lucky enough to get a glimpse of the northern lights in Scotland, and if you are really lucky in northern England and Northern Ireland, late Friday night into Saturday morning. The *aurora borealis* is caused as a result of activity on the surface of the sun.

Occasionally there are large explosions on the Sun and huge amounts of magnetically charged particles are thrown out into space (Coronal Mass Ejections). If these particles travel towards Earth they interact with the Earth's magnetic field and increase global geomagnetic activity. The increased activity releases energy into the atmosphere giving off light in the process, which we call the Northern Lights or the *aurora borealis*.

There are currently two Coronal Mass Ejections (CME) en route to Earth. The first should arrive tonight (Thursday night) giving the earth's atmosphere a glancing blow, the second is likely to arrive later on Friday. Their combined effect increases the chance of an *aurora borealis* event Friday night/Saturday morning, particularly at high latitudes in Scotland.

To view the Northern Lights you are best finding a dark place away from street lights. You will need a cloud-free sky and although there will be some cloud and localised fog patches around this Friday night there should also be some clear skies too. So there is a chance of catching a glimpse of the lights. Your best chance of sighting the aurora will be around midnight.



X-Class Flare erupting from The Sun. This event led to an Earth directed Coronal Mass Ejection

You can sign-up to receive aurora borealis alerts [from the British Geological Survey](#) when there is a chance for aurora activity when there is a chance for aurora activity or tell everyone about your

sightings using [GeoSocial – Aurora](#)

Keep an eye on the [Met Office forecasts](#) for the latest information.

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Turning even warmer for parts of Britain

Description

After a disappointingly cool and wet August, September has been largely fine, with plenty of warm sunshine for many areas.

This has been thanks to an area of high pressure centred across the UK, which generally brings us dry and sunny weather.

Through this week, the high pressure will slowly move towards Scandinavia, with low pressure moving north towards southern parts of Britain.

This will introduce some isolated but potentially heavy showers in place. Cloud from the North Sea will also keep some eastern areas of the UK cloudier and cooler.

However, this low pressure will also drag in warm winds from the Mediterranean and France, causing a rise in temperatures across parts of the country.

Where we see cloud breaks and further sunshine through this week, we could see temperatures across parts of the south and west reach the mid 20s Celsius by day.

This is considerably warmer than the average of around 17C that we would normally expect across the UK for mid-September.

There has been some press interest about what effect Hurricane Edouard, currently in the Western Atlantic, will have on the UK's weather.

It's still early days, but computer models currently suggest the storm will move into the Mid Atlantic and then track south towards the Azores, well away from the UK.

This will mean that the British Isles will not be directly affected by the storm, and there is a hint that the largely fine weather will continue into the weekend to give us further settled weather.

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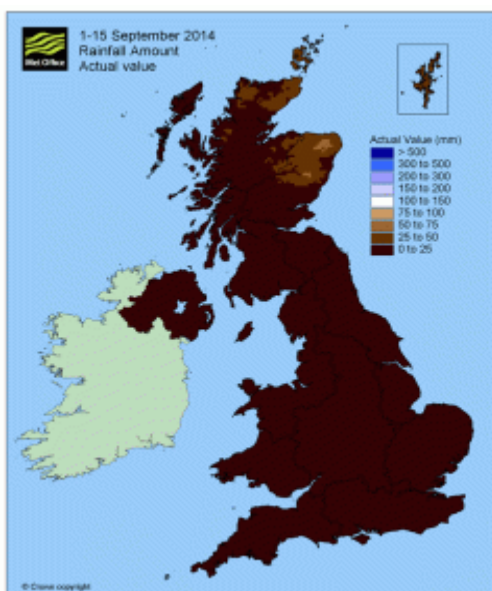
Driest start to September in over 50 years

Description

The first half of September has been exceptionally dry across much of the UK and temperatures for many areas have also been well above average, according to provisional Met Office statistics.

Figures up to 15th September show there has been 6.7 mm of rain across the UK, which is just 7% of the September average of 96mm. We would normally expect about half of the average monthly rainfall to have fallen by this point in the month.

This makes it the driest first half of September for the UK in available records back to 1960. It's also the driest start to September for Wales, Scotland and Northern Ireland, but not for England – 1997 and 2003 were drier.



Map showing actual rainfall across the UK from 1-15 September. All parts of the UK have been drier than average.

Looking at individual countries, Wales has been the driest with less than 1mm of rain up to the 15th. Northern Ireland is just ahead, with 1.2mm of rain. England has seen 4.1mm and Scotland has seen 13.5mm.

The UK mean temperature so far has been 13.9C, which is 1.3C above the full-month average.

Day-time maximums have been particularly high, with an UK average of 18.4C which is 1.9C above the average, while night-time minimums have been closer to average at 9.6C – which is 0.7C above average.

To complete the picture of generally fine weather for the first half of this September, sunshine has also been slightly above normal with 70.8 hours for the UK – about 57% of the full-month average.

These figures have come about after a prolonged spell of settled and fine weather, dominated by high pressure sitting over the UK. This has blocked the usual low pressure systems that move in from the west and bring unsettled conditions to the UK. Instead we have seen very little rain, generally warm conditions, and slightly above average levels of sunshine.

While these figures are interesting, they don't tell us where the month will end up overall. A few days of wet or cold weather could drastically alter the statistics, so we'll have to wait for the full-month figures before making any judgements.

Whilst the rest of this week should be dry and warm for many areas, some sharp showers may develop in places, particularly through Thursday and Friday.

1-15 September	Mean Temperature		Sunshine hours		Rainfall	
	Actual (°C)	Diff from Avg	Actual (hours)	% of Avg*	Actual (mm)	% of Avg*
UK	13.9	1.3	70.8	57	6.7	7
England	14.8	1.1	76.5	56	4.1	6
Wales	13.8	1.0	90.8	71	0.6	1
Scotland	12.6	1.7	57.1	54	13.5	10
N Ireland	13.2	0.8	63.2	56	1.2	1

*We would normally expect about 50% of the average by this point in the month.

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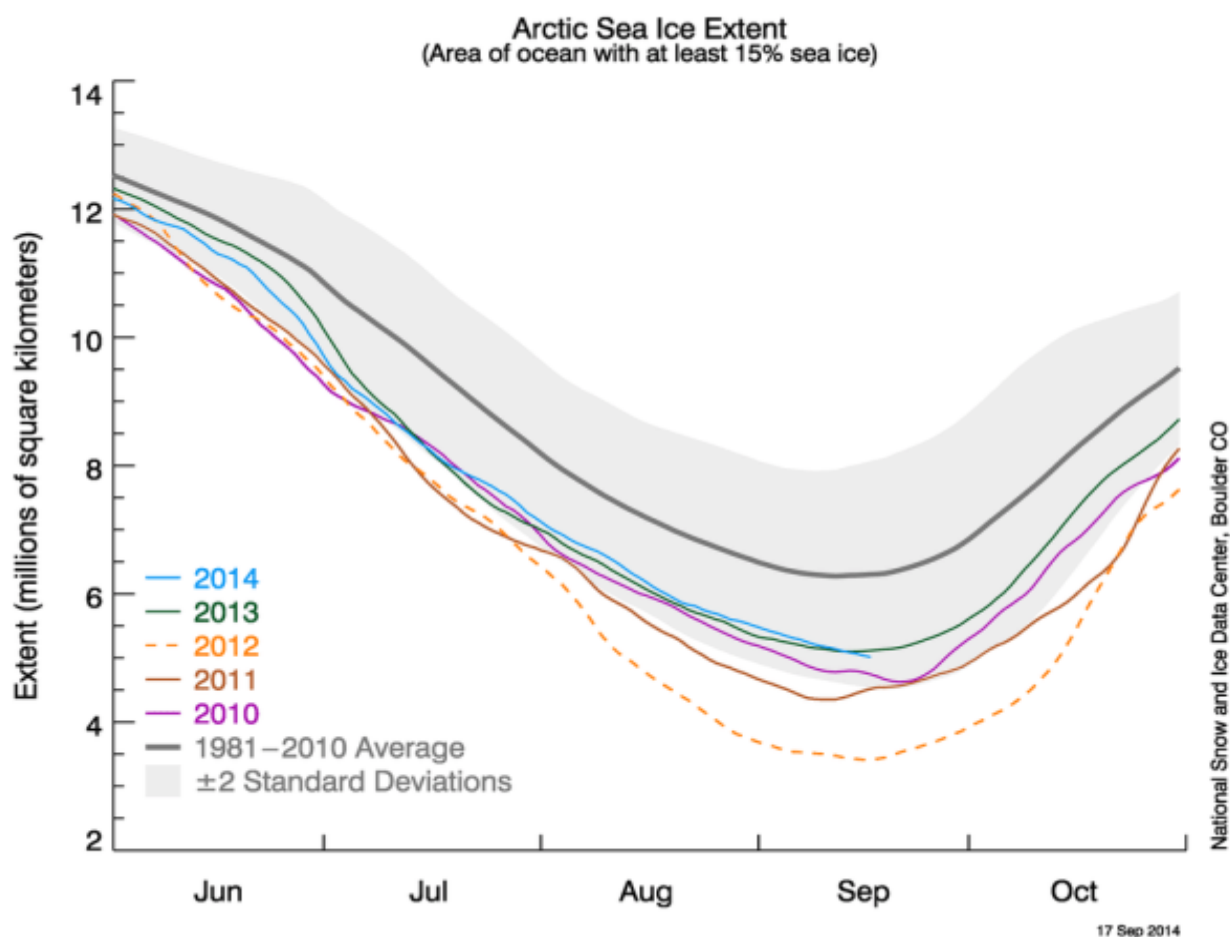
Arctic sea ice reaches minimum extent for 2014

Description

Arctic sea ice appears to have reached its minimum for 2014, according to [preliminary figures](#) from the National Snow and Ice Data Centre (NSIDC) in the US.

The extent dropped to 5.02 million square kilometres (1.94 million square miles) on 17 September, making it the 6th lowest extent observed since satellite observations became available in 1979.

This year's minimum is above the 2012 record low extent of 3.41 million square kilometres (1.32 million square miles), but still below the long term (1981-2010) average of 6.22 million square kilometres (2.4 million square miles).



Graph shows Arctic sea ice extent at 17 September 2014 along with daily ice extent for four previous years. Source: National Snow and Ice Data Center

There is a lot of year to year variability in the Arctic ice extent, as it depends on the Arctic weather.

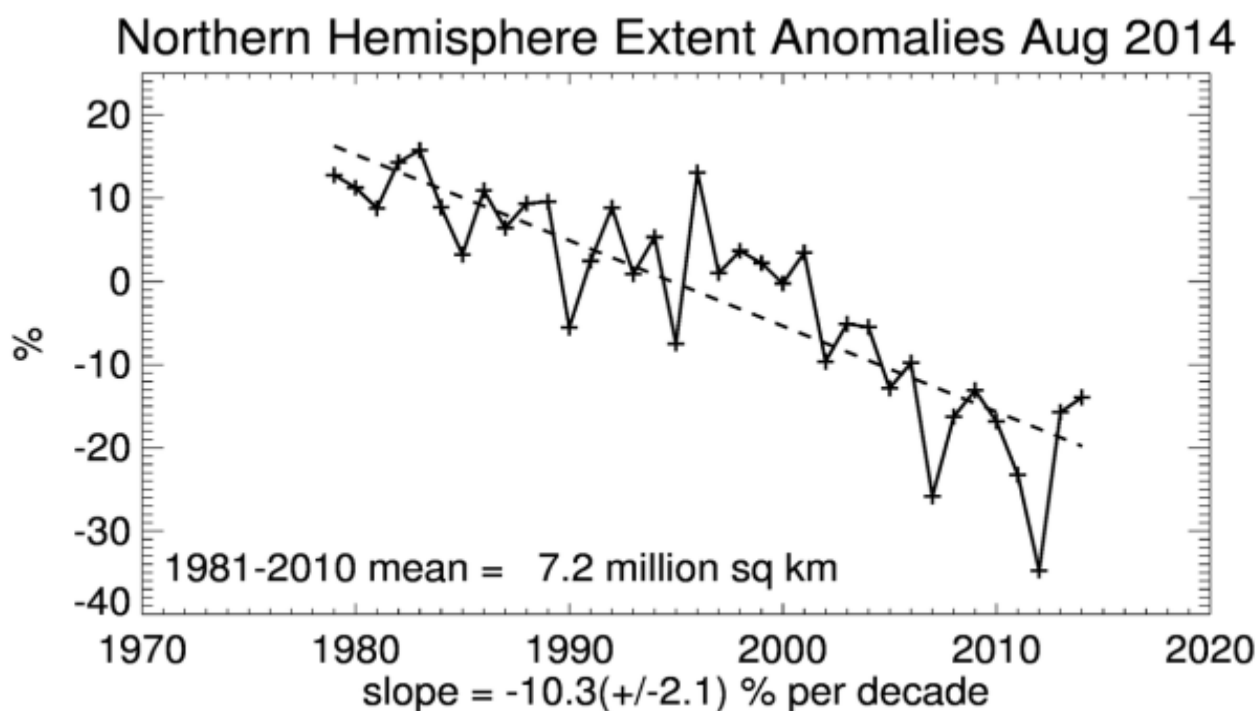
As the ice cover thins we expect the variability in cover to increase as larger regions of the Arctic become vulnerable to being blown by the wind or melting away completely over the summer.

Overall, the long term trend in ice cover remains downward, as illustrated by the below plot of August ice extents.

Earlier this month in the Laptev Sea, a small portion of the ice edge was within 5 degrees of the North Pole – this is the most northerly position that the ice edge has reached in this region since satellite observations began.

This year the Northern Sea Route has opened to shipping for the seventh year in succession, but the North-West Passage through the Canadian Archipelago remains blocked by ice – emphasising how Arctic summer sea-ice cover depends on the prevailing weather patterns.

The exact date on which the minimum ice extent occurs varies from year to year, depending on the weather conditions along the ice edge. The 1981-2010 average is 15th September, and the latest date so far in the records has been 23rd September.



Graph shows August Arctic sea ice extent for each year since records began as a % difference to the long-term (1981-2010) average for the month. Source: National Snow and Ice Data Center

Future of Arctic sea ice

Based on projections from current climate models, a plausible date for the earliest ice free (defined as extent less than 1 million square kilometres) summer in the Arctic would be 2025-2030.

Work continues to improve our understanding of the processes driving the ice decline and how they are represented in climate models. This may lead to revised projections of the date for an ice-free summer in the Arctic.

Impacts on UK weather

Changes in the Arctic ice cover have the potential to influence the weather further afield, by changing atmospheric circulation pattern outside the Arctic.

There is some evidence that low ice cover at the end of the summer can drive easterly winds across Europe, particularly in winter, potentially resulting in anomalously cold conditions.

The relative importance of sea ice conditions and other factors in generating cold conditions in the UK is an active research area for the Met office.

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